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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,322	08/01/2003	Munenori Oizumi	TI-35909	5221
23494 7590 12/14/2007 TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER ROSARIO, DENNIS	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 12/14/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/632,322

Applicant(s)

OIZUMI ET AL.

Examiner

Dennis Rosario

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Appeal Brief 9/21/07.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Appeal Brief

1. In view of the appeal brief filed on 9/21/07, PROSECUTION IS HEREBY REOPENED. A new grounds of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.

Claim Rejections - 35 USC § 112

2. Due to the appeal brief, the 35 USC 112 rejection of claims 1-5 are withdrawn.

Response to Arguments

3. Applicant's arguments, see page 4 or the appeal brief with respect to "step (c) no patentable weight" the rejections of claims 1,2 under Belykh have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tourtier et al. (US Patent 5,446,495) in view of Garakani et al. (US Patent Application Publication No.: US 2003/0185450 A1) further in view of Burel et al. (US Patent 5,321,771).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourtier et al. (US Patent 5,446,495) in view of Garakani et al. (US Patent Application Publication No.: US 2003/0185450 A1) further in view of Burel et al. (US Patent 5,321,771).

Regarding claim 1, Tourtier teaches a method of image filtering, comprising:

(a) computing a correlation (via fig. 5,num. 1 is based on a "correlation" in col. 1, line 64 to col. 2, line 1) in a first direction (corresponding to an associated "motion vector" in col. 4, line 38 that includes a direction known to one of ordinary skill in vectors) for each pixel in an image (represented as the output of fig. 5,num. 1);

(b) filtering (via fig. 5,num. 6) said image (output of fig. 5,num. 1) with a lowpass filter ("low-pass" in col. 5, line 55 which corresponds to fig. 5, num. 6); and

(c) interpolating (via fig. 5, numerals 4,5,6 and 7 which are also an "interpolation filters" in col. 6, line 49) said image (output of fig. 5,num. 1) and said filtered image (represented as the output of fig. 5,num. 6) from step (b) wherein said interpolating at said each pixel depends (since said interpolations 6 and 7 are based said fig. 5,num. 1) upon said modified auto-correlation (fig. 5,num. 1 that is based on the determined correlation) in a first direction (or said motion vector as determined in fig. 5,num. 1).

Tourtier does not teach the claimed "modified auto-correlation," but teaches using "correlation" in col. 2, line 1 to find a motion vector.

Garakani teaches using autocorrelation (corresponding to fig. 3, num. 302 that is equivalent to "autocorrelation" in paragraph [0131], line 11) to find a motion vector ("motion vectors" in [0190], line 1 and represented in fig. 3 as numeral 303. Note that in order to find a motion vector via the "Co-Locomotion Module" in [0186], autocorrelation is performed first because the motion vector or said co-locomotion module that finds the motion vector "depends...on an attentive acquisition sub-system [as shown in fig. 3, numerals 304,307,209 and 301] " in [0189], lines 5,6) which in turn depends on autocorrelation as represented in fig. 3 as num. 302).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Tourtier's teaching of correlation to find a vector with Garakani's teaching of finding a vector using autocorrelation, because Garkani's autocorrelation provides "automated detection...of the event of interest" in [0130], lines 26,27; thus, alleviating a "human observer" in [0130], line 1 from detecting an event of interest over an "18-day" in [0130], line 19 observation of the event of interest.

The combination of Tourtier and Garakani still does not teach the claimed "modified auto-correlation," but Garakani of the combination teaches that autocorrelation is "well known" in [0132], line 9.

Burel teaches the claimed "modified auto-correlation" in fig. 6: "Computation of the modified autocorrelation."

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Garakani's autocorrelation with Burel's modified autocorrelation, because Burel's modified autocorrelation is used to provide a "simpl[e]" in col. 7, line 42 classification which helps Garakani's goal of classifying using "classes (Garakani, [0112], line 5)."

Regarding claim 5, Garakani teaches:

(a) said image is a color channel ("chromatic channel" in [0122], line 7) of a color image.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tourtier et al. (US Patent 5,446,495) in view of Garakani et al. (US Patent Application Publication No.: US 2003/0185450 A1) further in view of Burel et al. (US Patent 5,321,771) as applied in claim 1, above, further in view of Burel (US Patent 5,321,771).

Regarding claim 2, Tourtier of the combination teaches:

a) said image of step (c) (output of fig. 5,num. 1) replaced by said interpolated image (via fig. 5,numerals 6 and 7) using said modified auto-correlation (or correlation) in a first direction; and does not teach the claimed "modified auto-correlation" and "first direction" but teaches correlation.

Burel of the combination teaches the claimed "first direction" or "horizontal correlation" in col. 3, lines 52, 53 and the remaining limitation of claim 2 of:

a) said first direction (said horizontal correlation) replaced by a second direction ("vertical movement" in col. 3, line 54), said second direction perpendicular to said first direction.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Tourtier's correlation with Burel's horizontal correlation which is the claimed "modified auto-correlation" for the same reasons as claim 1, above.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tourtier et al. (US Patent 5,446,495) in view of Garakani et al. (US Patent Application Publication No.: US 2003/0185450 A1) further in view of Burel et al. (US Patent 5,321,771) as applied in claim 1, above, further in view of Kim et al. (US Patent 5,544,658).

Regarding claim 3, Garakani of the combination teaches that autocorrelation is well known.

Kim teaches "modified auto correlation" in col. 3, line 17 and claim 3 of

(a) said modified auto-correlation ("modified auto correlation" in col. 3, line 17) of step (a) of claim 1 is $R_{xx}(1)/(R_{xx}(0) + \delta)$ (see equation "(1)" in column 3 and equation (9) in column 8) where $R_{xx}(\cdot)$ is the auto-correlation function for the pixel values in an interval about said each pixel and with the DC component removed (via fig. 5, num. 34), and where δ is a parameter (or "variables" in col. 8, line 22).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Garakani's teaching of auto-correlation with Kim's teaching of the modified auto-correlation, because Kim's modified auto-correlation remedies the deficiencies of auto-correlation with respect to "aliasing" in col. 3, line 9 or noise.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tourtier et al. (US Patent 5,446,495) in view of Garakani et al. (US Patent Application Publication No.: US 2003/0185450 A1) further in view of Burel et al. (US Patent 5,321,771) further in view of Kim et al. (US Patent 5,544,658) as applied in claim 3, above, further in view of Hall et al. (US Patent 5,363,851).

Regarding claim 4, the combination does not teach claim 4, but Garakani teaches that auto-correlation is well known.

Hall teach a modified auto-correlation as shown in fig. 4, num. 60 and claim 4 of:

a) $R_{xx}(1)/(R_{xx}(0) + \delta)$ (as shown in fig. 4,num. 60) exceeds a threshold (fig. 4,num. 68).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Garakani's teaching of auto-correlation with Hall's modified auto-correlation and threshold, because Hall teaching provides "accurate velocity estimation" in col. 2, line 12.

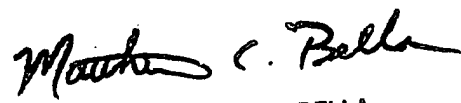
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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